agrees perfectly with the rate of the clock from February 23 and 25. Adopting this, we get for the stars observed this evening :

		Correction to Assumed Place. s	Final R.A. in Catalogue. s
1945	ι Cancri	+0·41	0·30
2406	χ Leonis	+0·34	45·67
2433	69 „	+0·05	34·03
2454	76 „	+0·45	42·15
2469	ι „	+0·54	34·73
2484	τ „	+0·20	42·37
2648	c Virg.	+0·56	13·52

No. 2457. δ *Crateris.* Confusion in the assumed places in N.P.D. The mean result is 103° 54′ 47″·54.

No. 2507. Approximate P.D.=19° 50′.

No. 2899. The first result in R.A. should be $+0^{s}\cdot05$; final mean, $13^{h}\ 27^{m}\ 38^{s}\cdot54$.

No. 3060. Minute of P.D. is 27′.

No. 3240. ν^{2} *Boötis.* Always hurriedly observed in R.A. after 52 *Boötis.*

No. 4003. Observed after 55 *Draconis*; no estimate of N.P.D. given. According to Schröter, of Christiania (*A. N.* 3527), it is not on the parallel of 55 *Draconis.*

No. 4698. Seconds of N.P.D., 46″·69.

No. 4781. For single results, see p. 832.

No. 5003. Observation of 1838 November 11 (over one wire and through clouds) should be rejected. This makes seconds of R.A.=$58^{s}\cdot11$.

No. 5175. Single results in N.P.D. should be +2″·75 and +5″·30, and N.P.D.=67° 28′ 31″·51.

No. 5181. On p. 627, for 4″·76 read +10″·18. Seconds of P.D. are 6″·15.

On the Variable Velocity of a Persei. By H. F. Newall.

From measurements which have been made of photographs recently taken at the Cambridge Observatory, it appears that *a Persei* has a variable velocity in the line of sight.

Eleven photographs were secured during 1900 September and October with the large four-prism spectroscope that was used in the observations of *Capella.* The spectra are taken with a long camera, and the linear dispersion is 6 tenth-metres per millimetre. The spectra are measured with a Zeiss micrometer, which is so arranged that ten revolutions of the micrometer screw correspond to 1 millimetre ; thus one revolution of the micrometer corresponds to 0·6 tenth-metre, and there is not much

difficulty in setting the wires on the lines of the photographed spectra with such precision as to give the wave-length of the lines within one-hundredth of a tenth-metre. In terms of velocity, one revolution of the micrometer corresponds to about 40 kilometres per second.

The following table contains a statement of the results obtained from the above-mentioned photographs. Each spectrum has been measured in the manner described in a previous paper (*Monthly Notices*, vol. lx. p. 418). The values given for the velocity are means of two measurements made, one by myself, the other by my assistant, A. W. Goatcher. There is a systematic difference of about 2 km./sec. between our results; this requires further investigation, but does not affect the broad facts established by the work as a whole.

Velocity of a Persei in the Line of Sight.

Plate Number		Velocity Relative to Earth.	Correction for Earth's Orbital Velocity.	Velocity Relative to Sun.
F. 118	1900 Sept. 6·54	−20·9	+24·8	+3·9
F. 121	Sept. 11·58	−26·4	+24·2	−2·2
F. 123	Sept. 13·48	−24·3	+23·9	−0·4
F. 125	Sept. 17·52	−22·2	+23·3	+1·1
F. 126	Sept. 19·52	−21·1	+22·9	+1·8
F. 128	Sept. 21·50	−16·9	+22·5	+5·6
F. 130	Oct. 4·46	−16·0	+19·3	+3·3
F. 131	Oct. 10·44	−15·4	+17·5	+2·1
F. 132	Oct. 21·44	−10·5	+13·6	+3·1
F. 134	Oct. 26·39	−4·2	+11·7	+7·5
F. 135	Oct. 27·41	−10·9	+11·3	+0·4

Three other photographs taken with half the linear dispersion were secured in 1899 October. They have been measured, with the following results:—

F. 23	1899 Oct. 5·46	−22·7	+18·9	−3·8
F. 26	Oct. 9·46	−15·5	+17·7	+2·2
F. 28	Oct. 10·44	−17·9	+17·4	−0·5

A preliminary discussion of the variable velocity leads me to alternative conclusions, between which it is not possible to decide until more material is collected. The conclusions are that *a Persei* may move either in an approximately circular orbit in a period of 4·20 days, or in an elliptical orbit of considerable eccentricity in a period of about 16·8 days.

The range of velocities observed at Cambridge is small, lying between −4 and +8 km./sec. The Potsdam observations in 1888 give a velocity of −10 km./sec. Professor Campbell's obser-

vations at the Lick Observatory are recorded in the *Astrophysical Journal*, vol. viii. p. 150 :—

1896	Nov. 11·8	...	...	−2·0
	Nov. 12·8	...	...	−1·8
1897	Jan. 19·6	...	...	−3·5
1898	July 12·0	...	...	−2·1

Curiously enough, the dates of the latter observations are so related as not to give decisive evidence as to which of the suggested periods is most probable.

More material is required, and it should be gathered in photographs taken at short intervals. I beg to present this note in the hope that other observers may be able to secure observations whilst *a Persei* is in favourable position.

1900 *November* 8.

On the Disappearance from Photographic Films of Star-images and their Recovery by the aid of a Chemical Process. By Isaac Roberts, D.Sc., F.R.S.

On p. 15 of my second volume of photographs of *Stars, Star-Clusters and Nebulæ* I gave instances of the disappearance of the images of many faint stars from the films of negatives, which had been taken nine and a quarter and nine and one-fifth years respectively, between the dates when the images were counted. This statement was seen by Sir William Crookes, and he informed me that probably by the application of chemical reagents the images that had become invisible might be restored to view ; and further he generously offered to try the experiment if I would send him the negatives ; which offer, of course, I gladly accepted.

The two negatives referred to in my book were sent, and in a short time they were returned to me with the request that I should examine them and report if the experiment had succeeded. I thereupon recounted the star-images on the plates and found that every one of the missing images had been restored to view as distinctly, I think, as they were after the negatives were first developed ; the experiment therefore had succeeded perfectly.

Sir William Crookes readily placed at my disposal the formulæ of the reagents he had employed in the experiment, with permission to publish them, thus placing me, and all others who may be engaged in the work of photographing the stars and nebulæ, under obligation to him.

The following are the formulæ and processes employed by Sir William Crookes as they were given in his letter to me :—

" 1. Soak the plate for three hours in distilled water.

" 2. Prepare, in advance, two solutions, A and B.